2014

The Effect of Direct Payments to Rice Farming Households in Korea

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SPRING [2014]

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Executive Summary

1) Background

Rice farming is a very important agricultural policy issue for the Korean government not only because rice is a staple food for the Korean population but because rice production is also an important source of income for those involved in rice farming. The importance of rice production to the agricultural sector of Korea is indicated by the fact that 49% of Korea's agricultural land is devoted to rice production. Therefore, Korean agricultural policy has focused on rice production issues as well as the income of farmers involved in rice production.

To support rice farming income, the Korean government has been implementing a direct payment program for rice paddies which gives subsidies to rice farmers since 2003. However, it is unclear whether rice farming income has increased since this program started because the amount of the payment is calculated not by income level but by the price of rice and given to the land owners whether they actually farm the paddies or not.

2) Analysis

To discover whether rice farming income has increased since the direct payment program was implemented, a comparison of rice farming income data between 1993-2002 and 2003-2012 was undertaken. Data show that rice farming income has not increased since the direct payment program was implemented. In fact, rice farming household income has decreased by 10.3% from 2003 to 2012 after increasing by 34.2% from 1993 to 2002. Considering that agricultural income as a whole increased by 15.5% and average national household income increased by 52.9% from 2003 to 2012, rice farming income has been in decline.

The reason why rice farming income has not increased can be explained by some conditions during that period. Direct payments are calculated based on the gap between the target price and the realized price. The target price of rice has been fixed since 2003 even though other economic factors such as GDP per capita, average income per household and CPI(Consumer Price Index) have significantly increased. In addition, rice consumption per capita in Korea went down from 83.2kg in 2003 to 69.8kg in 2012. Furthermore, rice farming area per household declined from 22,146m^2 in 2003 to 20,030m^2 in 2012, and the number of individuals per rice farming household also declined from 2.96 in 2003 to 2.55 in 2012.

3) Recommendations

Considering that GDP per capita in Korea increased by 60% during the period, it is necessary to adjust the target price for direct payment calculation to some degree. Because the subsidy is determined by the gap between the target price and the realized price, adjusting the target price will increase amount of payment to rice farmers and it can make rice farming income also increase.

Furthermore, it should be noted that the rice production subsidy has to be given to the real farmers who actually grow the rice crops. And for the income support to be appropriate, the calculation of direct payment has to take into account the income level of rice farming households.

1. Introduction

Rice is the staple food of Korea and one of the country's most important agricultural commodities. Rice farming in Korea started around 2,000 B.C. and since that time Koreans have used rice as a staple food, often eating it with every meal.[1] For thousands of years, most of Korean agriculture was rice farming. Recently various kinds of agricultural products have become more prevalent, including horticulture products, green house farming and other special crops which are more profitable. Nevertheless, rice paddies make up 49% of the total agricultural area of Korea and rice is the most important source of nutrition. As a result, policy related to rice production has become one of the most crucial issues in Korea.

To maintain the rice industry, the Korean government has implemented several programs such as increasing yield, irrigation, seed improvement and import quota. Furthermore, given that rice farming could not be maintained without farmers, the Korean government has also established rice production subsidies to help stabilize or increase the income of rice farmers to keep them in the business of rice farming.

Traditionally, income support for the agricultural sector has been implemented by price support from the Public Stocking in Korea. With the Public Stocking scheme, government bought overproduced rice from farmers, then put it on the market in order to lower the rice price when the price is too high. Sometimes the Korean government used the stocked rice for aid to the North Korea or other countries which suffered the shortage of food. But since 2003, the main instrument of the agricultural income support policy especially for the rice paddies has been

[1] Ho-Chul Lee, "Study of the Agricultural Economics", Kyungbook University. Korea. 1989.

changed from Public Stocking to Direct Payment[2]. It was assumed that direct payment would be helpful to maintain farmer's income, but a critical question is whether rice farmers really have had sufficient income since this program has been implemented.

For example, the amount of money that would be provided to farmers has been calculated by the price of rice rather than whether any farmer's income was high enough or not. In addition, the funds were provided to the landowner. A farmer who rents land for rice farming could not get direct payment, but the landowner who does not carry on farming could.

In light of this, it is necessary to examine whether this program really increases income level for farming households, which was presumably one of the goals of the rice production subsidy programs[3].

Previous studies about government support for agriculture including income policies and their effectiveness will be discussed first. Then, the status of agriculture in South Korea and the direct payment program for rice paddies will be discussed. Data on direct payment will be examined to show whether rice farming income has increased since the program was introduced. To do this, a comparison of rice farming households' income before and after the program will be used. Then, the reasons why rice farming income has changed will be discussed.

[2]http://www.mafra.go.kr/list.jsp?board_kind=&board_skin_id=&depth=3&division=H&group_id=4&link_menu_id=&link_target_yn=N&link_url=&menu_id=1233&menu_introduction=&menu_name=&parent_code=67&popup_yn=N&reference=4&tab_yn=N&code=left&tab_kind=Y&locationId=4

[3] Ministry of Agriculture, Food and Rural Affairs, "Manual of Agricultural Programs". Seoul. 2013.

2. Previous Studies

Government Support for the Agricultural Sector

There are many criticisms that government support for the agricultural sector, including the direct payment program, is not effective in achieving governmental goals. These views are mostly based on economics. For example, Bates[4] mentioned that government provision and subsidization have led to inefficiencies and corruption, especially for the inputs such as credit, extension service, irrigation, seed and fertilizer. He also mentioned that these supports would put unbearable burdens on the government's financial situation and advised that these input supports should be privatized. Furthermore he insisted that subsidies for the agricultural sector should be eliminated or rapidly reduced.

In July 2012, the United States Government Accountability Office (GAO) published findings that the U.S. Department of Agriculture (USDA) made more than $46 billion in direct payments to farmers from 2003 to 2011 and recommended that direct payments should be eliminated or reduced because they created several problems. First, GAO pointed out that much of the direct payments were paid to farmers who did not grow the right agricultural products. Farmers who did not grow the right crop received about $10.6 billion. In addition, 0.15% (2,300) of farmers who received direct payments reported that their lands were fallow. Further, when the direct payments to farmers were first authorized, they were expected to be transitional, but subsequent legislation passed in 2002 and 2008 has continued the program, which is no longer relevant.[5]

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[4] Bates R, "Markets and states in tropical Africa". University of California Press. Berkeley, CA. 1981.

[5] United States Government Accountability Office, "Farm programs – Direct payment should be

Another problem with the program is targeting; direct payments are concentrated among the larger farmers based on farm size and income. In 2011, 73% of total direct payments were given to the top 25% of recipients. Moreover, with the current government deficit and debt level, the U.S. government may not be able to afford direct payments.[6] The GAO report also pointed out that this program may lack effectiveness. Even though direct payments are less distortive than other programs such as price support, economic distortions can still occur from these payments. For example, farmers whose farms are not viable by themselves and should shut down can survive with these payments. This means that marginal farmers who should move to other jobs are artificially kept in the agricultural business through the subsidies creating economic distortions.[7]

On the other hand, some believe that the agricultural sector should not be approached with an economics view insisting that market failures in the field of agriculture require government involvement to solve those problems. Some researchers consider issues of income redistribution or food security as part of this view.

For example, Chang[8] pointed out that the concept of government failure is used by economists who insist that government support has to be eliminated or reduced, but that can be applied when markets are working perfectly. However, there have been several market failures in the agricultural sector. He mentioned that market signals can lead agricultural actors to use inputs

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reconsidered". GAO-12-640. 2010.07: 13-14

[6] Ibid: 16-17

[7] Ibid: 18-19

[8] Ha-Joon Chang, "Rethinking public policy in agriculture: lessons from history, distant and recent". Journal of Peasant Studies 36:3. United Kingdom. 2009.12: 477-515

at a less than socially optimal amount. There can be several public goods other than just agricultural productions such as beautiful scenery and rural amenities in the agricultural field, and these public goods would be produced at a less than socially optimal level without government' intervention. So, agriculture should be supported by government to make up these problems.

Sometimes certain government actions may make distortions in the short term but actually increase long-term productivity. Chang mentioned agricultural tariffs as an example. Tariffs can lead to short-term inefficiencies, but when the tariff revenues are invested by the government in the agricultural field, it might promote agricultural growth and overall economic growth in the long run. Furthermore, he suggested that it may be better to create distortions even when there has been no market failure. For example, if a country has a well-designed welfare system such as pension or free medical service, low income people could be supported by that welfare system. But, without that, government should implement policies to improve income stability.

Income Support Policies for the Agricultural Sector

Park[9] offered examples of agricultural income policies in the US, Japan and the EU. According to him, net farm income per year in the US has increased consistently, reaching $77,000 per farming household in 2010. Direct payment from government budget made up approximately 15.5% of this income. Park found that this increase was caused by the Farm

[9] Joon-Kee Park, "A study in long-term policy direction in agricultural investment". KREI 2011-17. Seoul Korea. 2011.06

Security and Rural Investment Act of 2002, which expanded the policy of direct payment given in fixed amounts of cash unrelated to the real amount of farming output. Furthermore, Counter-Cyclical Payment (CCP) was adopted to make up for the sudden collapse of global grain prices.[10]

Park said that the EU has a more scaled-up farming structure than Korea or Japan, and regional specialization is the key strength of the EU's agriculture. For example, horticulture is a specialty in Spain, Italy and Greece, the dairy industry in Finland and Ireland, and hog farming in Denmark, Belgium and the Netherlands. The EU operates the Common Agricultural Policy (CAP) and adopted a single direct payment system called the Single Farm Payment Scheme (SPS) in 2003. Under the SPS system, farmers get payment regardless of their crops. This means that direct payment does not affect decisions about which crops farmers will grow. This program does not create inefficiency and farmers can get enough money. In 2009, the total budget for agriculture in EU was €56 billion, of which 70% (€39 billion) was used for direct payments.[11]

Park also mentioned the agricultural status and policies of Japan. As in Korea, the staple food of Japan is rice, so there has been an emphasis on the rice industry. The budget for the agriculture department in Japan decreased from 3,423 billion yen in 1995 to 2,271 billion yen in 2011, with direct payments to farming households making up 40.4% of the total agricultural budget. Since 2010, a compensation system for farming household income has been implemented. Under this system, the difference between target crop prices and realized prices is paid to farming households through a payment comprising a fixed payment and a variable payment.[12]

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[10] Ibid: 69-70, 79

[11] Ibid: 114-115, 119-120, 126-132

[12] Ibid: 51-53, 62

Effectiveness of Income Support Policies

There are many criticisms that farming income has not been increased although a large amount of government support has been provided to farmers and rural areas. Yu[13] found that the effects of agricultural financial expenditure on rural residents' income are relatively unstable in the short term, but have a steady and weak positive effect in the long term. When rural residents' income reaches a certain level due to the government support, a self-promotion mechanism can be set in order to promote the continued increase in rural residents' income.

Park[14] mentioned that agriculture in South Korea has proceeded in the direction of specialization and scaling, but the size of agriculture is still relatively small. And, the decrease of farming income and the increase of income disparity have intensified recently. As a result, the population in rural areas is being diminished and the settlement condition such as residential and cultural environment is going steadily downhill, so population and culture of rural areas are disappearing.

The Korean Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF)[15] reported in 2012 that current income stabilization policies such as the direct payment program for rice paddy have some problems. For example, the direct payment program leans too much toward rice farming, and the payments cannot overcome the negative effects from globalization efforts such as the South Korea – United States Free Trade Agreement which went into effect in March

[13] Zhi-wei Yu, "Co-intergration analysis of urban resident income, agricultural financial expenditure and farmers' income". Asian Agricultural Research 11-12. Guangzhou China. 2009.01: 8-12

[14] Joon-Kee Park, "A study in long-term policy direction in agricultural investment". KREI 2011-17. Seoul Korea. 2011.06: 12-20

[15] Mifaff, "The improvement plan of farming income stabilization system". Seoul Korea. 2012.

2012. MIFAFF suggested policy goals to remedy the situation. First, the Korean government has to develop various positive values of agriculture and rural areas such as beautiful views and amenities of rural areas. Second, the current direct payment program should focus on small scale and elder farmers to a greater degree and set up a control system that can prevent overlapping support. Third, every policy must be feasible in terms of the ability of the government to pay and acceptability to farmers or rural residents. Finally, the program should suit international norms such as considering the limitations from World Trade Organization (WTO) and Aggregate Measurement of Support (AMS).[16]

In 2008, Lee and Yang[17] analyzed the effects of direct payment under specific scenarios. They found that when the market price of rice decreased by 30%, income from rice production decreased by 82%. However due to the income stabilizing effect of direct payment, the real income of rice farming households was only reduced 11%, while the burden of the government increased by 202%. If the government reduced the target price by 5%, the amount of variable payments would be reduced by 54% and the income of farming households would be decreased by 6%. With this analysis, the positive effect of direct payment was explained.

[16] Ibid: 2-3

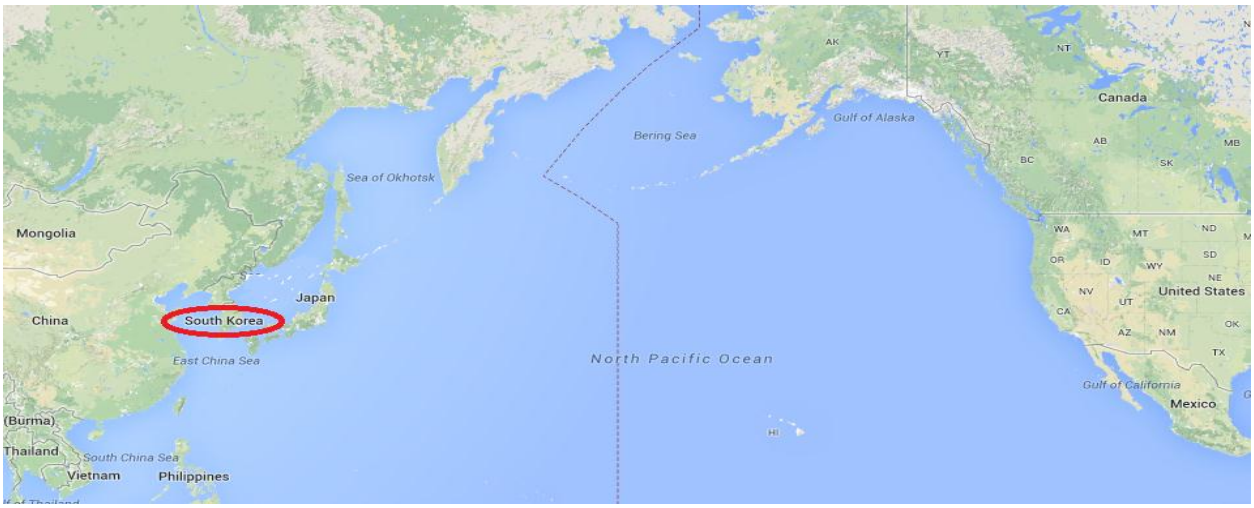
[17] Choon-soo Lee and Seung-ryong Yang, "The effects of rice income direct payment program by scenario". Research of Agricultural Economy 49-3. 2008.9

3. Basic Information

South Korea and its agricultural status

South Korea has an area of 24,641,349 acres and a population of 48,955,203 as of July 2013. In 2012, Korea's Gross Domestic Product (GDP) was 1,163.5 billion US dollars,[18] the 15th largest among all countries. GDP per capita in 2012 was $23,679.[19]

<Figure 1: Location of South Korea>



<Table 1: South Korea and Ratio of Agriculture>

	Population	Area (acre)	GDP ($)	GDP per capita ($)
Total	48,955,203	24,641,349	1,163.5billion	23,679
Agriculture	2,911,540	4,274,897	39,285million	13,493
Percentage	6%	17%	3%	57%

*Source: The Korean government (Statistics Korea)

As shown in Table 1, the GDP of the agricultural sector of Korea in 2012 was $39 billion ($13,493 per capita). The agricultural population in 2012 was 2,911,540, and the number of

[18] $1=1,100 Korean Won

[19] Statistics Korea (www.kosis.com).

farming households was 1,151,116. Agricultural land was 4,274,897 acres, of which rice paddy comprised 2,098,350 acres (49%), beans including soy beans 230,480 acres (5%), root and tuber crops such as potato 115,166 acres (3%), chili pepper 112,332 acres (3%).

<Table 2: Budget of the Korean Government in 2013>

Total $311 billion								
Welfare & labor $88.5 billion	Public admin $50.7 billion	Education $45.3 billion	National defense $31.2 billion	S.O.C $22.1 billion	**Agriculture & fisheries $16.7 billion**	R&D $15.4 billion	Industry & energy $14.1 billion	Etc. $27.0 billion

*Source: Ministry of Strategy and Finance in Korea

As shown in Table 2, the total budget of the Korean government was $311 billion in 2013. The budget allocated for agriculture and fisheries was $16.7 billion or 5.4% of the total budget, with the budget for the agricultural sector only at $12.3 billion.

<Table 3: Budget for the Agricultural Sector[20]>

	2012	**2013**
Total	**12,434**	**12,297**
Strengthen agriculture constitution[21]	2,501	2,788
Farming income and management stability	1,792	1,901
Rural development and welfare	1,446	1,499
Management and distribution of product	2,939	3,181
S.O.C. in agricultural sector[22]	2,702	1,899
Food industry	609	667
Extra working expenses	132	41
Administrative costs	314	320

*Source: Ministry of Agriculture, Food and Rural Affairs (MAFRA) of Korea

[20] Unit: million U.S. dollars

[21] R&D, facility modernization, energy issues, marketing, education and so on.

[22] Irrigation, reserve, bank and so on.

As shown in Table 3, the biggest part of the agricultural sector budget - $3.2 billion - is spent for the management and distribution of agricultural products, with strengthening agriculture at $2.8 billion, and farming income and management stability at $1.9 billion.

<Table 4: Budget by Commodity[23]>

	2012	2013
Total	**12,434**	**12,297**
Rice	5,010	4,409
Horticulture	1,742	2,171
Livestock	1,106	1,264
Food	609	667
Not specified	3,966	3,786

*Source: Ministry of Agriculture, Food and Rural Affairs (MAFRA) of Korea

As shown in Table 4, budget in the agricultural sector can be divided by commodity: $4.4 billion was spent for the rice industry, $2.2 billion for horticulture and $1.3 billion for livestock.

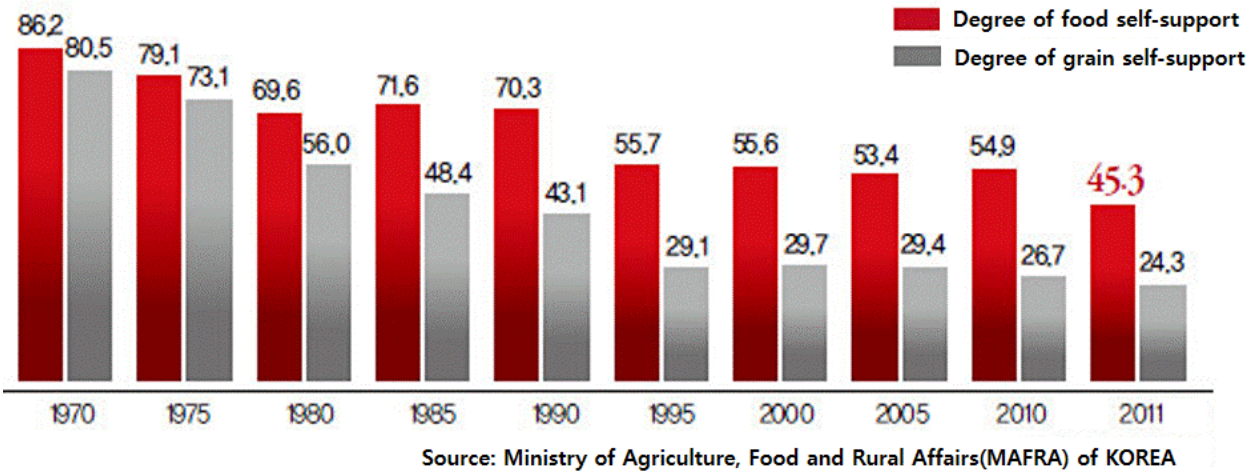
Direct Payment for the rice paddy

Since the Uruguay Round (UR) and World Trade Organization (WTO) agreement came into effect, Korea's markets have been opening up gradually, such as through the South Korea - United States Free Trade Agreement that went into effect in March 2012. As Korea's markets are becoming more open, its agricultural sector has been damaged. For example, the food and grain

[23] Unit: million U.S. dollars

self-support rate[24] have decreased every year as shown in Figure 2.

<Figure 2: Food and grain self-support rate>



Opening the market pushed the government to implement policies which were purposed to support the agricultural sector, including income support. Before the start of the World Trade Organization (WTO) system, most countries controlled the price of agricultural products to protect their own agricultural industry. The Korean government had implemented a Public Stocking Scheme, which is a purchase and release mechanism based on market price.[25]

However, after the WTO agreements became effective, the Korean government has been unable to implement policies that could affect the price directly.[26] As a result, a new type of policy - direct payment to farmers - has been used in many countries such as the US, the EU and Korea. The staple food of Koreans is rice, so the Korean government has been implementing the

[24] Percentage of food and grain consumption which is produced in domestic market.

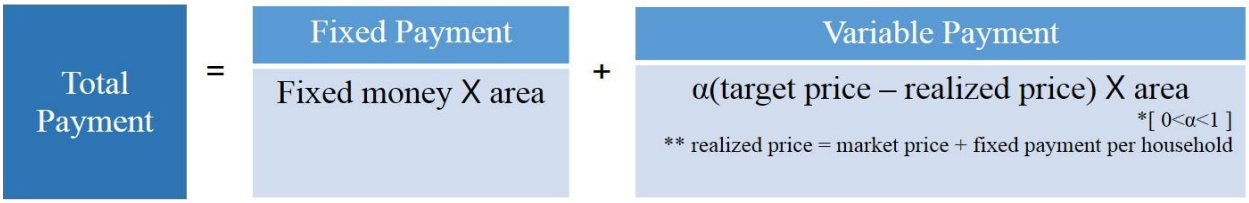
[25] OECD. "Evaluation of Agricultural Policy Reforms in Korea". 2008.

[26] Taeho Lee. "The direction of direct payment policy in the medium and long term". KREI Forum. 2013.02.

direct payment program for rice paddies since 2003. This direct payment is composed of two parts. The first is the fixed payment which is a fixed amount of money paid to rice farmers, and the second is the variable payment calculated by comparison between the target crop price and the realized price, which is the sum of market price and amount of fixed payment per household.

The fixed amount is given to the owner of the rice paddy, with the total amount determined by the size of the paddy. The variable payment is determined by the price of rice. Every year, there is a target price of rice. If the realized price is lower than the target price, a variable payment would be made. In the beginning of the year, the fixed payment is given to land owners, and the variable payment is given after the market price of rice is decided.[27]

<Figure 3: Simple calculus of direct payment>



<Table 5: Direct payments for the rice paddy>

Year		**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Budget (million U.S. dollars)	Total	433	438	1,368	1,049	901	647	1,115	1,248	561	555
	Fixed	433	438	549	652	647	647	575	566	561	555
	variable	-	-	819	397	254	0	540	682	0	0
Average rice price Per 80kg (U.S. dollars)		145	148	147	127	134	137	148	129	126	151

**Source: Ministry of Agriculture, Food and Rural Affairs (MAFRA) of Korea

[27] MAFRA, "Implementing Guide for the agricultural programs". Seoul Korea. 2012.

Table 5 shows the amount of direct payment given to rice farmers every year. In 2008, 2011 and 2012, the variable payment was not given because the realized price was higher than the target price.

4. Income of Rice Farming Household: Rise or Not?

To examine the change of income since the direct payment program was adopted in 2003, a comparison is made of the rice farming income data 10 years before (1993-2002) and 10 years after (2003-2012). Using Microsoft Excel, two trend lines were drawn to help compare the two periods. Each year's average income of rice farming household data from 1993 to 2012 has been used[28].

<Figure 4: Trends lines before and after program[29]>

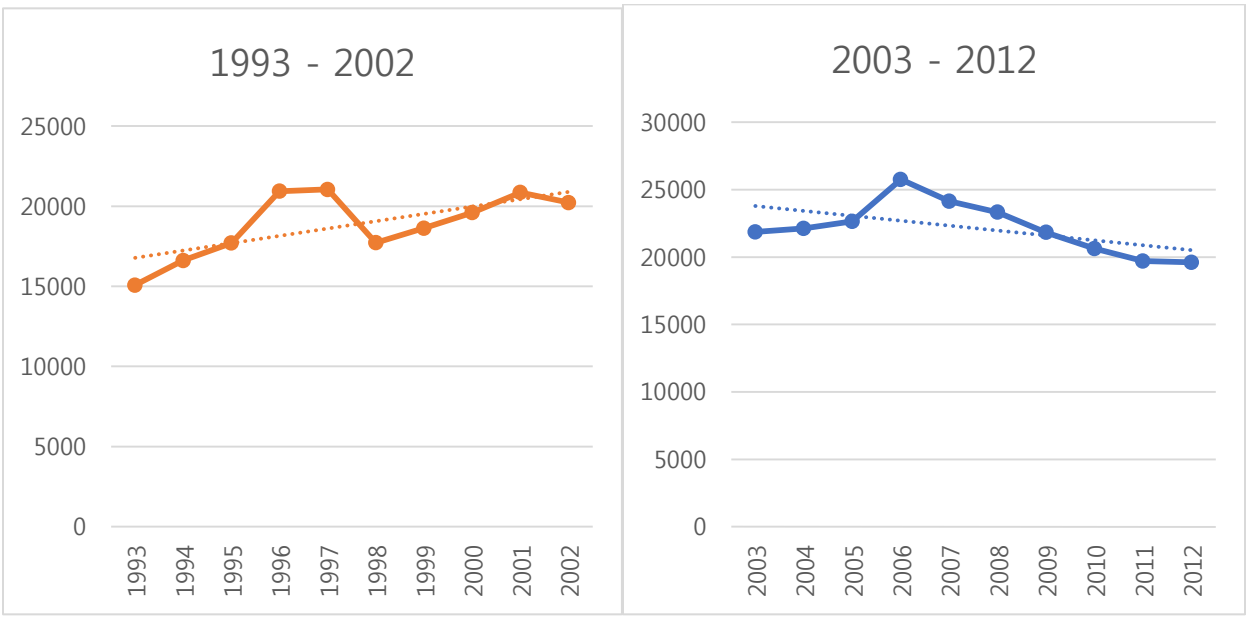


Figure 4 shows the two trend lines from 1993 to 2002 and from 2003 to 2012. From 2003 to 2012 the trend line has declined (income declined by 10.3% from 21,868 thousand won to 19,609 thousand won), while the trend line before that period increased (income increased by 34.2% from 15,074 thousand Korean won to 20,225 thousand won). This comparison shows that

[28] Data sources: Korean Statistical Information Service (KOSIS, http://kosis.kr) and Ministry of Agriculture, Food and Rural Affairs (MAFRA) of Korea

[29] Unit: Thousand Korean Won

the direct payment program did not have a positive effect on the income of rice farming households.

To determine the effectiveness of the direct payment program more accurately, two more comparisons were implemented. Average rice farming income was compared with the income of all farming households, and with the average national income was compared with rice farming income.[30]

<Figure 6: Income from Rice Farming Compared To Income from All Agricultural Activities[31]>

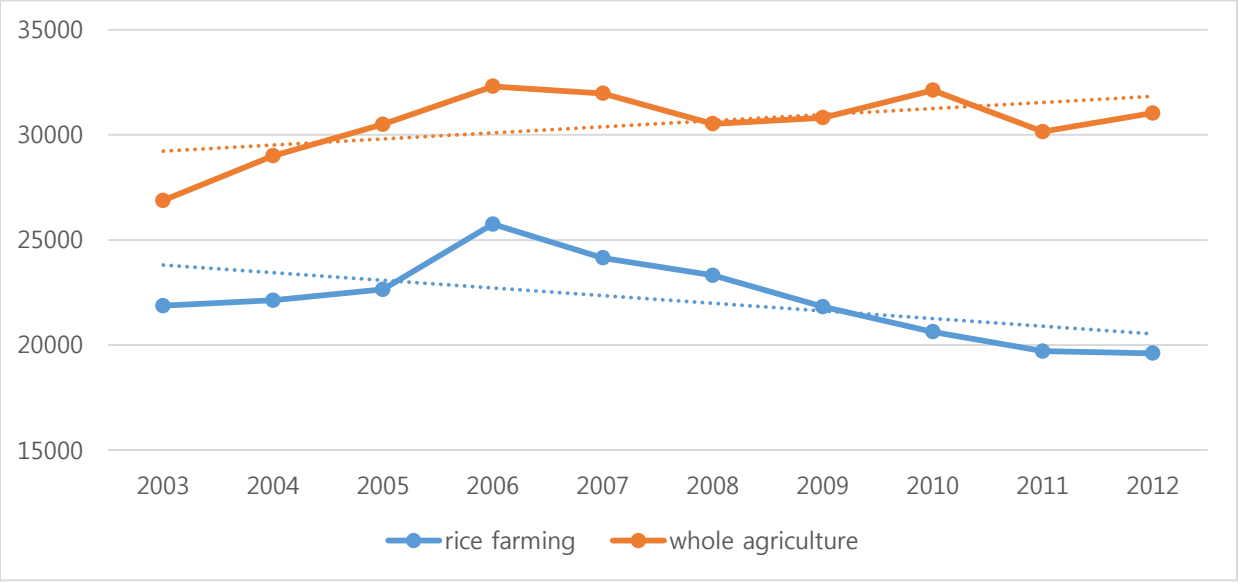


Figure 6 shows the trend lines of rice farming income and whole agricultural income. From 2003 to 2012, the average income for agricultural households as a whole increased from 26,878 thousand Korean won to 31,031 thousand won, for a rate of increase of 15.5%. The trend line shows this increase. The figure also shows that rice farming income declined from 2003 to 2012.

[30] Data of total agricultural income and whole national income source: KOSIS

[31] Unit: Thousand Korean Won

<Table 6: Ratio between rice farming income and all agricultural income[32]>

year	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2012
rice farming	15,074	17,702	21,046	18,635	20,857	21,868	22,648	24,143	21,824	19,707	19,609
whole agriculture	16,928	21,803	23,488	22,323	23,907	26,878	30,503	31,967	30,814	30,148	31,031
ratio	89.0%	81.2%	89.6%	83.5%	87.2%	81.4%	74.2%	75.5%	70.8%	65.4%	63.2%

Table 6 shows the ratio between rice farming income and all agricultural income. In 1993, the ratio was 89.0% and decreased slightly to 81.4% in 2003. After 2003, the ratio declined more sharply, reaching 63.2% in 2012. This means that rice farming income has declined while income from other agricultural commodities has increased.

<Figure 7: Income from Rice Farming Compared with National Household Income[33]>

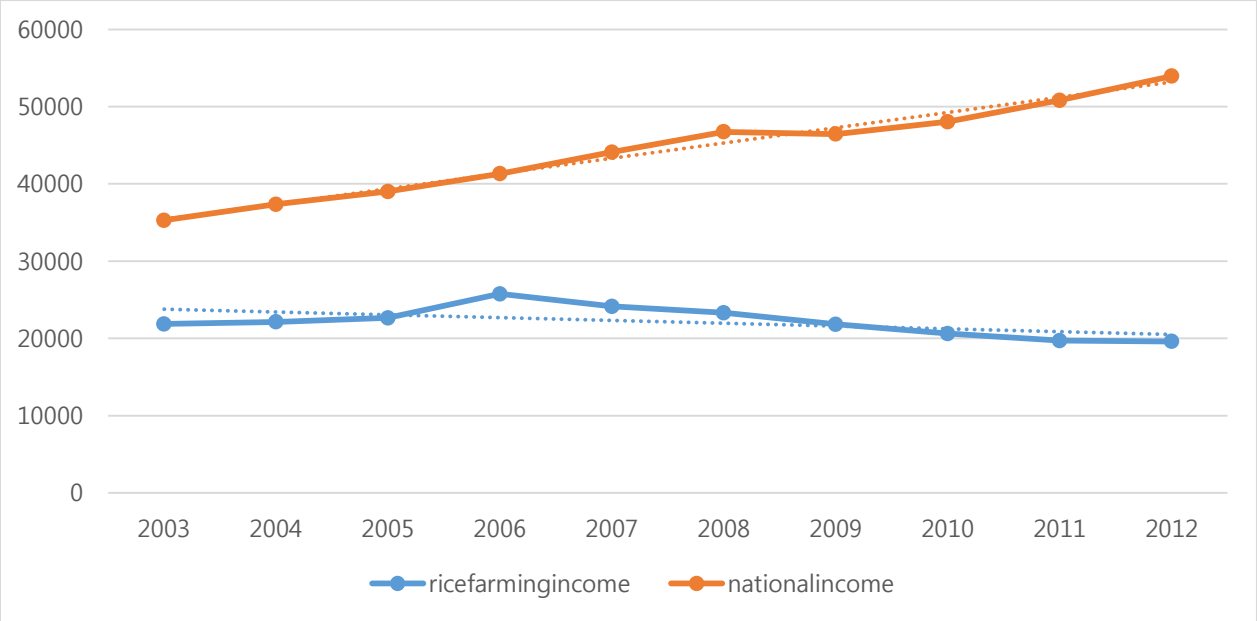


Figure 7 shows that the national average household income has increased greatly, from

[32] Unit: Thousand Korean Won

[33] Unit: Thousand Korean Won

35,280 thousand Korean won in 2003 to 53,950 thousand won in 2012 (52.9%), while income of rice farming households has declined from 21,868 thousand won in 2003 to 19,609 thousand won in 2012 (-10.3%).

<Table 7: Ratio between rice farming income and national household income[34]>

year	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2012
rice farming	15,074	17,702	21,046	18,635	20,857	21,868	22,648	24,143	21,824	19,707	19,609
national average	17,734	22,933	27,448	26,697	31,501	35,280	39,010	44,105	46,452	50,811	53,950
Ratio	85.0%	77.2%	76.7%	69.8%	66.2%	62.0%	58.1%	54.7%	47.0%	38.8%	36.3%

Table 7 shows how much rice farming income has declined compared with the national average income. In 1993, the ratio between rice farming income and national average income was 85.0%, but it decreased to 62.0% in 2003 and then to 36.3% in 2012.

From the analysis above, a conclusion can be drawn: compared to the period before the policy was implemented, the income level of rice farming households has not increased since the direct payment program started. In fact, rice farming income has decreased relative to total agricultural income and whole national income.

[34] Unit: Thousand Korean Won

5. Discussion

It seems that the direct payment program which was intended to support rice farming income has not had a sufficient effect. There seems to be two main reasons why the income of rice farming households has not increased though the direct payment program was implemented: the direct payment program has internal problems, and the circumstances of the rice industry were not able to support income at a sufficient level.

The direct payment program has several internal limitations to support sufficient income. One is that the amount of payment is calculated not by income level but by the rice paddy area. This means that small-scale farmers who have a small size of rice paddy could not get sufficient money, while a small number of large-scale farmers get a large amount of money.

In addition, the calculus utilizes the price of rice rather than income. Compensation for the lack between the target price and the realized price can have a positive effect on income level, but the target price has never been changed from 170,083 Korean Won per 80kg[35] since the program was first implemented. During that period, national average household income increased by 52.9%, and GDP per capita increased by 60% from 16,040 thousand won in 2003 to 25,590 thousand won in 2012.[36] The fixed target price could be one of the main reasons that rice farming income did not increase in spite of the direct payment.

It seems that there are also several environmental factors that had negative effects on rice farming income during the period of direct payment.

<Table 8: Rice Demand in Korea>

[35] Source: MAFRA of Korea

[36] Economic Statistics System (ECOS) of the Bank of Korea (http://ecos.bok.or.kr)

year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Rice consumed per capita (kg)	83.2	82.0	80.7	78.8	76.9	75.8	74.0	72.8	71.2	69.8
Population (1,000)	47,859	48,039	48,138	48,372	48,598	48,949	49,182	49,410	49,779	50,004
Total consumption (million kg)	3,982	3,939	3,885	3,812	3,737	3,710	3,639	3,597	3,544	3,490

*Source: MAFRA of Korea

Table 8 shows the rice consumed per capita and total national rice consumption calculated by multiplying per capita rice consumption and total national population. Rice consumption per capita has dropped dramatically in Korea from 83.2kg in 2003 to 69.8kg in 2012. Although the population gradually increased each year, total consumption of rice declined from 3,982 million kg in 2003 to 3,490 million kg in 2012.

<Table 9: Rice Farming Area per Household>

year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Farming area per household(m^2)	22,146	21,233	21,399	22,363	23,467	18,881	19,114	20,856	18,788	20,030

*Source: MAFRA of Korea

Furthermore, rice farming area per household has been slightly reduced as shown in Table 9, which means rice farming households could not scale-up, but remained small farmers.

<Table 10: Number of Members per Rice Farming Household>

year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of members	2.96	2.85	2.83	2.77	2.77	2.67	2.62	2.61	2.56	2.55

*Source: MAFRA of Korea

Table 10 shows that the number of individuals per rice farming household has also

declined, which means that the number of family members who can earn money through farming is lower and farming households do not have the same earning power as before. And, it also means that rice farming households don't need as much income as before.

These reasons may have contributed to the circumstances that made rice farming income fails to increase during the direct payment program period. If the direct payment had not been given to farmers, their income might have dropped even more.

6. Policy Recommendations

Data and analysis show that the income level of rice farming households has not been sufficiently supported under the current direct payment program. Considering the importance of the rice industry in Korea, it seems that the Korean Government has to change its policy directions. Recommendations have to be focused on fixing the program's inherent problems because environmental factors cannot easily be changed.

First, the target price has to be increased. From 2003 to 2012, the CPI (Consumer Price Index) has gradually increased every year (Table 11). The CPI is determined by monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services[37]. Target price should be adjusted to at least the increasing rate of CPI.

<Table 11: increasing rate of CPI>

year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Increase rate of CPI (%)	3.5	3.6	2.8	2.2	2.5	4.7	2.8	3.0	4.0	2.2

*Source: E-Index of Statistics Korea (http://www.index.go.kr/potal)

Second, the payment should be given to the farmers rather than the land owners. The purpose of this program is to support rice farming households and maintain the rice industry. Supporting farmers themselves will enable them to keep farming rather than moving to other industries.

Third, the calculation of direct payment has to consider income level rather than rice paddy area. With this change, small farmers who need more support for their income can have sufficient earnings to continue rice farming.

[37] U.S. Bureau of Labor Statistics (http://www.bls.gov/cpi/).

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